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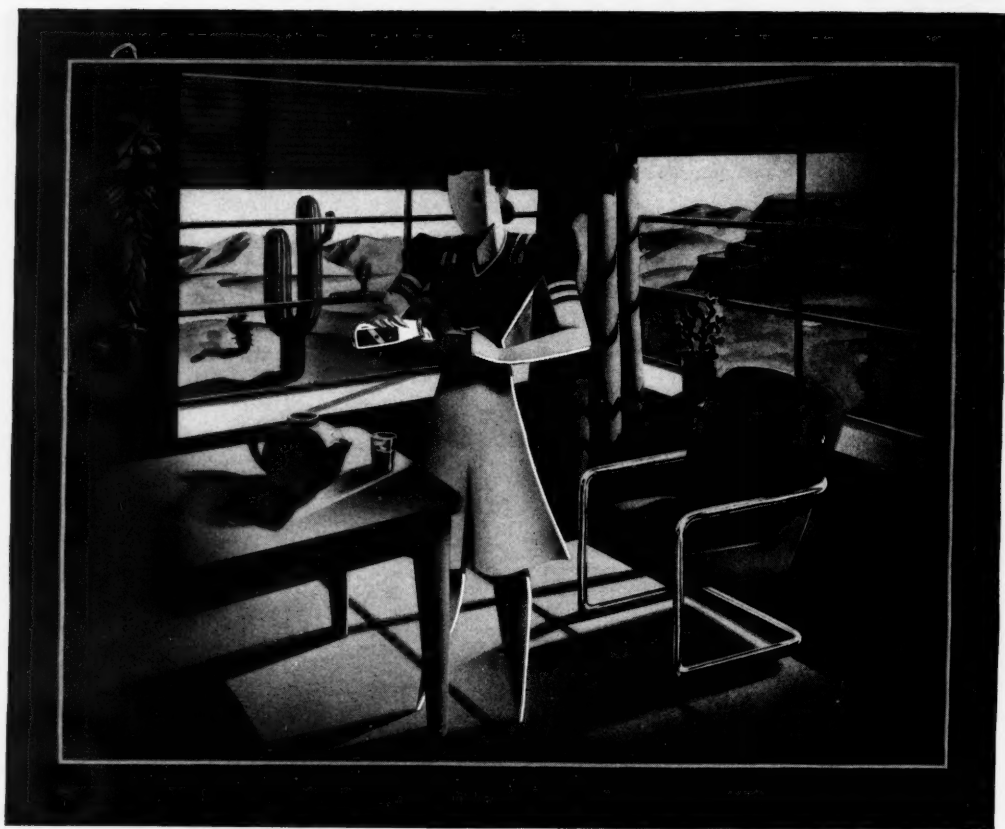
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THE EDWIN SMITH SURGICAL PAPYRUS

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In the opinion of many students, and among them are to be reckoned some eminent historians, medical science began with the rise of Greek medicine; yet nothing is farther from the truth. For many centuries before that era, there existed a considerable medical literature in the Ancient Near East. The first faint flickerings of the scientific interest, as we regard it today, developed in ancient Babylonia and nearby Egypt. The beginnings of medical knowledge reach back to about 3000 B.C. in both countries. The literature of Babylon was recorded on tablets of stone which were easily broken and destroyed while that of Egypt was more conveniently inscribed on papyrus rolls. Some of the latter have been found loosely tucked in a coffin or mummy case, and so have been preserved for us, whereas the Babylonian fragments have probably served as building stones.

Many students of history believe that the Valley of the Nile is the true cradle of civilization. Here medicine early attained an outstanding position. It is no accident that the leading God of medicine, Aesculapius, was originally an historical personage, an ancient Egyptian wise man and physician, grand vizier, chief architect and royal medical adviser of the Pharaoh in the Thirtieth Century B.C., called Imhotep by the Egyptians, the earliest known physician in history.

Realizing the exalted position of this venerable Egyptian physician of five thousand years ago, we need not be surprised to learn that the historical documents of Egypt reveal the existence of medical treatises early in the third millennium B.C. A few of these treatises have come down to us as medical papyri.

The *Ebers Papyrus* was originally supposed to be one of the Sacred or Hermetic Books of Thoth, the Moon God, who, like Apollo in Greece, was the special deity of medicine. Later researches have shown that it is to be regarded as a simple compilation, as if prepared for some great temple. It is

really an encyclopedia made up of several treatises. It begins with a number of incantations against disease and then proceeds to list a large number of diseases in detail, with some 875 recipes, and 47 diagnosed cases. The most interesting parts are the extensive sections on the eye and ear, including a notation of the Egyptian trachoma, and the descriptions of the A A A disease, the U H A disease and the Uxedu (painful swelling), all three of which have been thought to be different stages of the hookworm infection. The large number of remedies and prescriptions cited in the papyrus suggest a highly specialized therapeutics but this fact alone would seem to indicate a decadence rather than any special advancement in the art of healing. These facts demonstrate the existence of so large and detailed a body of medical knowledge in the Old Kingdom as to require specialization. Wounds in skulls discovered only a few years ago at Thebes disclose evidence of surgical operations and demonstrate that surgery was already well advanced in that era. Each Egyptian physician was a narrow specialist, confining himself to one disease or to diseases affecting one part of the body only. Thus he was known as the "palace eye-physician", the "palace stomach-bowel physician", as "one understanding the internal fluids", or as "guardian of the anus."

In the last section of the *Ebers papyrus*, which treats of tumors, we find some approach to the accurate clinical pictures of Hippocrates. Some ethical precepts of the ancient Egyptian physicians are very much like the Hippocratic oath in sentiment and expression, and this alone would suggest that pre-Hippocratic medicine in Greece owed much to Egyptian medicine. There is, however, one marked point of difference, namely, that later Egyptian medicine was entirely in the hands of priests, while Greek medicine was entirely independent of priestly domination.

Read before the Providence Medical Association at the meeting on June 3, 1940.

Egyptian medicine is evidently closely connected with Biblical medicine, as evidenced in the numerous old Testament references to medical subjects, particularly in the Pentateuch.

In 1862, Edwin Smith, an American Egyptologist living at Thebes, purchased fragments of a papyrus from an Egyptian fellah.

The papyrus was in a badly preserved condition and required skillful restoration. It has been translated and studied only within the past decade. The Edwin Smith surgical papyrus consists of seventeen columns of writing on the front and four and a half columns on the back. The material on the back consists of recipes and incantations. There are incantations against pestilence and a long recipe for restoring youth to an old man. These recipes and incantations are a later addition, having no relation to the writing on the front. The introduction to the treatise has been lost, but from a hint dropped in the Papyrus Ebers it may have been identical with an ancient medical book spoken of as "The Secret Book of the Physician."

The seventeen columns on the front are part of a treatise which is fundamentally different from any of the surviving medical documents of the ancient Orient thus far discovered.

This treatise is purely surgical, the first and oldest thus far recovered. It is an orderly arrangement of cases which begins with injuries of the head, and proceeds downward through the body, like a modern treatise on anatomy. The treatment of the injuries is rational and chiefly surgical. There is resort to magic in only one of the 48 cases preserved. Each case is classified by one of three verdicts: (1) favorable, (2) uncertain, or (3) unfavorable. The third verdict, expressed in the words, "an ailment not to be treated" is found in no other Egyptian medical treatise. This unfavorable verdict marks a group of cases which the surgeon cannot cure, and which he is led to discuss solely from his scientific interest in the phenomena observed.

This papyrus is a copy, dating from the 17th Century B.C., of an older manuscript written in the Pyramid age, one thousand years earlier. Both the beginning and the end of the copy have been lost and the manuscript nowhere discloses the name of the author, but we conjecture that a surgical treatise of such importance may possibly have been written by that earliest known physician, Imhotep, the great architect-physician who flourished in the 30th Century B.C.

That this surgical treatise was already old when this copy was made, is further shown by the fact that the terms employed were no longer clear to the ancient Egyptian reader of that remote day; for it has a commentary incorporated into the text. This commentary is a priceless revelation of the meaning of many words and terms which would otherwise have remained hopelessly unintelligible, coming down to us from an age when surgery was first creating its technical language, some 5000 years ago. The author was building up a terminology in surgery, such as has happened in one science after another.

The study of these words reveals in a fascinating manner the human mind struggling to express its meaning, and creating the necessary terms by comparing them to familiar, every-day objects. Here is the word "brain" occurring for the first time in human speech. In discussing injuries to the skull affecting the brain, this ancient surgeon is not content with the designation of "fracture", but further indicates the degree of injury by the terms "compound fracture" and "compound comminuted fracture." The convolutions of the brain he likens to the corrugations on molten copper and the aptness of this phrase will be recognized by anyone who has seen the convolutions into which metallic slag forms itself. The fork in the ramus of the human mandible he compares to the claw of a two-toed bird. Here are the earliest known anatomical, physiological and pathological descriptions. By his constant reference to the side of the head which has been injured he shows an early appreciation of cerebral localization—an observation which has been more fully developed only within the present generation. He had already observed a series of effects arising in other parts of the body as a result of injuries to the brain or spine, and was aware of the shift of the effect from one side to the other according to the side of the brain injured, but he was misled by the *contre coup*. Here then is the discovery of the fact that the brain is the source of control of the movements of the body. He used adhesive tape and surgical stitching. He recognized the cardiac system and nearly discovered the circulation of the blood, for he appreciated the importance of the pulse and had probably already begun to count it. He knew that the pulse represented a pulsation of the heart, that there was a canal leading from the heart to every member of the body, and that there is "pulsation in every vessel of every

member." This was 2500 years before mention of the pulse appeared in Greek medical treatises. At the same time he knew little of the nervous system other than the brain and spinal cord, but made the remarkable observation that a dislocation of the cervical vertebrae was accompanied by a seminal emission.

If the remainder of the treatise ever existed, its loss is a subject of keenest regret, for it would undoubtedly have included a discussion of the surgery of the digestive system and other viscera. What happened to the scribe of 3500 years ago, engaged in copying the ancient surgical treatise, then already a thousand years old, will always remain a mystery. He had copied at least eighteen columns of the venerable manuscript and had reached the bottom of a column when, pausing in the middle of a line, in the middle of a sentence, almost in the middle of a word, he raised his pen and ceased writing. Little did he realize that centuries later the scientific world would mourn the loss of the remaining portion of the oldest surgical treatise.

It must be understood that the Smith Papyrus is at least the third edition of this treatise. The first edition was that of the anonymous author. Then in the 26th Century B.C. an editor equally intelligent as the original author copied the text and supplied the glosses. Our copy is one made 1000 years later from the second edition by a careless scribe who made numerous errors, some of which he tried to correct, while others passed unnoticed until discovered by the masterly work of James H. Breasted, recently published in two volumes. This is one of the most remarkable documents in the entire history of scholarship.

To understand the difficulties encountered by scholars in translating an Egyptian papyrus, a brief consideration of the Egyptian language is necessary. Egyptian writing was originally purely pictographic, each picture signifying the thing it depicted or suggested. These pictures were called hieroglyphs and were always used for inscriptions and monumental records on stone, long after they had become phonetic signs. These hieroglyphic pictures were slow and difficult to make, and were gradually replaced by a form known as the hieratic, in which the signs could be written more rapidly. Hieratic may be compared to our own handwriting, and hieroglyphic to printing in capital letters. It is practical and convenient to transliterate an Egyptian hieratic writing into the hieroglyphic pictures

just as we might edit an old handwritten manuscript by preparing a typewritten copy of it. Both hieratic and hieroglyphic read from right to left. Hieratic is sometimes described as cursive, which is simply a modification to permit of more speed in writing.

All that is preserved of this ancient treatise, occupying the front of the papyrus, contains forty-eight cases, all injuries or induced by injuries with two possible exceptions. The discussion begins with the head and skull, and proceeds downwards by way of the nose, face and ears, to the neck, clavicle, humerus, thorax, shoulders, and spinal column, where the text suddenly and dramatically ends in the middle of a line, in the middle of a sentence, in the middle of a case. There are twenty-seven cases which discuss injuries to the head, two each of the cervical vertebrae, clavicle, humerus and sternum, and one each of the shoulders and the spinal column below the neck.

It is probable that the complete treatise continued the discussion of the lower parts of the body and concluded with the feet, although there is no evidence to support this conclusion. There is some reason for the supposition, however, since the Papyrus Ebers proceeds in this orderly fashion.

The author follows a definite principle of arrangement, and besides proceeding from the head downwards, he also considers trifling cases first, then passing to more serious and fatal cases. He first considers injuries to overlying soft tissues and then proceeds to a discussion of more serious injuries affecting the underlying bone. Thus the first case deals with a superficial scalp wound, the second with a more gaping cut, the third a perforation, the fourth a "split" and the fifth a compound, comminuted fracture. In the sixth case the meningeal membranes are ruptured, and so on to other fatal injuries of the skull.

The discussion of each case discloses a systematic arrangement which is almost universally followed throughout the treatise. It is as follows:

1. Title.
2. Examination.
3. Diagnosis.
4. Treatment (unless the case is considered fatal and untreatable).
5. Glosses (a little dictionary of obscure terms with this explanation).

In some cases, although a fatal outcome is to be expected, the surgeon indicates his scientific interest by outlining an alternate group of symptoms

which, if present, might imply a favorable outcome, and outlines a treatment for the same.

1. The *title* begins with the word "Instructions", followed by location of the injury and the region or organ affected, e.g. "Instructions concerning a gaping wound in his head, penetrating to the bone, (and) splitting his skull."

2. The *examination* is worded as a teacher addressing a pupil would speak. This raises the question if the papyrus is not simply a text book, the instructions of the master being recorded in the very words which he used. The examination regularly begins: "If thou examinest a man having", or "thou shouldst place thy hand upon him" or "thou shouldst probe his wound" etc. The examination includes (a) history, (b) observation (inspection), (c) smell, as in the case of perforated sutures of the skull the surgeon observes that "the odor of the chest (crown) of his head is like the urine of sheep", (d) tactile observations, in which the surgeon is directed to lay his hand on the wound as well as to probe it. It is possible that the surgeon was instructed to apply his hand or fingers for the purpose of counting the pulse. In the case of a dislocated mandible, the surgeon is particularly instructed just how to place his fingers and thumbs for the purpose of reducing the dislocation, and we note that he places this kind of manipulation in the examination rather than in the treatment. This was undoubtedly because the operations of the surgeon were not regarded as treatment, which consisted in the mind of the Egyptians in the use of medicaments and recipes. (e) Movements of parts of the body as directed by the physician. In examining a dislocation of the cervical vertebrae, the author observes "he is unable to turn his face that he may look at his breast and his two shoulders." One of the most interesting of these tests, is the last case in the treatise, that of a sprain in the spinal vertebrae. The surgeon is directed as follows: "Thou shouldst say to him: Extend now thy two legs (and) contract them both (again). When he extends them both, he contracts them both immediately because of pain." These instructions indicate the earliest examples of observation and conclusion, the oldest known evidence of an inductive process in the history of the human mind.

3. The *diagnosis* is always introduced by the words: "Thou shouldst say concerning him", addressed to the student by the lecturer, and continuing "one having" (followed by a description of the

disease or injury). The diagnosis always ends with the verdict in one of the following statements, varied according to the severity of the symptoms:

1. "An ailment which I will treat."
2. "An ailment with which I will contend."
3. "An ailment not to be treated." (14 times)

It is to be noted that the third verdict is to be found in no other Egyptian medical papyrus, and the second verdict is found only twice in Papyrus Ebers. The verdict is not comparable to our prognosis, because the surgeon simply outlines his course of procedure, but does not venture an opinion as to the outcome of the case.

There are also qualifying verdicts:

- A. "Until he recovers."
- B. "Until the period of injury passes by."
- C. "Until thou knowest that he has reached a decisive point."

One diagnosis is noteworthy because of the clear reasoning shown by the author. In a case of compound, comminuted fracture of the skull without visible external injury, the condition is described as "a smash in his skull under the skin of his head, there being no wound at all upon it". This is explained in the gloss as meaning "a smash of the shell of his skull, the flesh of his head being uninjured." The absence of external injury might easily have misled the practitioner to conclude that the partial paralysis of the lower limbs, and the distortion of the eye, both on the same side, might be due to disease. He is, however, keenly aware of the condition present, and adds: "Thou shouldst account him one whom something entering from the outside has smitten." This is further elaborated in the gloss: "As for 'one whom something entering from the outside has smitten' . . . it means one whom something entering from the outside presses, on the side of him having this injury." The ancient surgeon was already beginning observations on the localization of the functions of the brain.

4. *The treatment.* The surgeon does not always decide to treat. In 16 out of 58 examinations he omits all suggestions as to treatment. In the cases where treatment is prescribed it is entirely mechanical in three cases, surgical combined with external medicaments in twenty cases, and by the use of external medicaments in nineteen cases.

The mechanical appliances are few, but their use is described for the first time in surgical treatment. Lint, swabs of linen (for the nose), bandages of linen made by the embalmers, adhesive plaster ap-

Hieroglyphic text from the Edwin Smith Surgical Papyrus, Case 48. The text is written in a cursive style and is cut off in the middle of a line at the bottom. The fragment shows the end of the incomplete surgical treatise.

End of the incomplete surgical treatise, showing Case 48, ending abruptly in the middle of a line. Read from right to left.

Reproduced from *The Edwin Smith Surgical Papyrus, Volume II*, by James Henry Breasted. Courtesy of the University of Chicago Press.

plied to gaping and cut wounds. To use the quaint language of the text: "To the two lips of the gaping wound, in order to cause that one join to the other." Surgical stitching, cauterization, splints or braces of wood padded with linen were employed. A strip of stiff "cartonnage"* moulded to a broken limb much resembled a modern plaster cast, and stiff rolls of linen called "posts of linen" for splinting a broken nose were used. Supports or piers for maintaining the patient in the upright posture in skull injuries, were made of sun-dried brick or adobe and moulded to fit the patient. Unfortunately no systematic study of the surviving Egyptian surgical instruments has ever been made, although the museums of Europe and America contain a large number.

The Egyptian surgeon's treatment of fractures was apparently very successful. Directions are given for the reduction of fractures and dislocations and the proper application of splints. In over 100 cases of fracture of the forearm, only one ununited fracture,—that of the ulna,—and one case of suppurative were found.

The author is evidently at a loss regarding manipulation of a skull fracture. Outside of initial probing, always performed with the fingers, he relied upon rest. Examination of over 100,000 bodies in Egyptian cemeteries and tombs reveals three common conditions: (1) arthritis, (2) mastoid disease, (3) fracture of the ulna two inches above the wrist. In women the left ulna is most commonly broken as though the injury were received in attempting to fend off a blow from a club.

External medicaments consisted in the application of fresh meat for one day followed by honey-ointment and numberless vegetable and mineral decoctions.

5. The *glosses* constitute a little dictionary of terms occurring in the treatise, which was already so old in the 26th Century B.C., that it contained numerous terms no longer in use and requiring explanation for the reader of that day. Many of these glosses go into great detail in explaining the ancient language, so that the student may have no possibility of doubt as to the correct meaning of the statement. The original author of the treatise, and his successor, who wrote these glosses, were the first natural scientists of whom we have knowledge.

*Cartonnage consisted of layers of linen impregnated with glue and plaster and moulded while soft to conform to the limb and is commonly found in mummy cases.

The last column from the front of the papyrus has been chosen for illustration. The following is a translation of the final case of the treatise:

CASE FORTY-EIGHT

A SPRAIN IN A SPINAL VERTEBRA (Incomplete)

TITLE

Instructions concerning a sprain of a vertebra [in] his spinal column.

EXAMINATION

If thou examinest [a man having] a sprain in a vertebra of his spinal column, thou shouldst say to him: "Extend now thy two legs (and) contract them both (again)." When he extends them both he contracts them both immediately because of the pain he causes in the vertebra of his spinal column in which he suffers.

DIAGNOSIS

Thou shouldst say concerning him: "One having a sprain in a vertebra of his spinal column. An ailment which I will treat."

TREATMENT

Thou shouldst place him prostrate on his back, thou shouldst make for him

In considering the function of this treatise, we are aware of the existence of three classes of surgical documents in ancient Egypt. First, handbooks used by surgeons in daily practice. Second, outlines for the use of teachers in giving medical lectures, and third notebooks used by students in reporting medical lectures.

It is probable that this treatise was a reference book from the medical library of a practicing physician, and that on the back of it he had jotted down from time to time, magical recipes as they had come to his attention. In fact, the whole treatise is very much in the nature of notes, whether those of a lecturer or of a student.

DEPORTMENT

A physician should be an "upright man, instructed in the art of healing." Consequently he must keep himself pure in character and conform to a high standard of morals and must be diligent and conscientious in his studies. "He should also be modest, sober, patient, prompt to do his whole duty without anxiety; pious without going so far as superstition, conducting himself with propriety in his profession and in all the actions of his life." (Hippocrates.)

From the Code of Ethics of the A. M. A.

LUETIC HEART DISEASE IN RHODE ISLAND

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In May, 1940, there were in Rhode Island 4,480 persons known to be under treatment for syphilis, according to figures supplied by the Rhode Island Department of Health. Slightly less than 1700 of these were registered in the established venereal disease clinics located at the Woonsocket Hospital, Memorial Hospital in Pawtucket, Newport Hospital and the St. Josephs, the Chapin and the Rhode Island Hospitals in Providence. From these clinics figures have been obtained which make possible the estimation of certain probabilities concerning the syphilitic group in the State as a whole.

There is no syphilitic involvement of the human body which is probably more frequently overlooked than that of the cardiovascular system. Syphilitic aortitis in its early so-called silent period, which may become rather long, is difficult, if not impossible, to detect and for that reason a great deal of emphasis has not been placed on its diagnosis. This lack of emphasis has lead to insufficient attention on the part of the physician to premonitory signs and symptoms. While the most striking evidences of aneurysm, the thrill, the loud murmur and the peripheral signs of syphilitic valvular lesions attract a great deal of attention it is seldom one finds much interest shown in the comparatively insignificant signs and symptoms of early aortitis which almost invariably precedes every other syphilitic cardiac process. That syphilitic involvement of the heart is common has been emphasized by many pathologists some of whom claim that more than fifty per cent of all patients with syphilis reveal damage in the aorta and its vicinity at autopsy. Our great authority, Stokes, says, "From the pathologic physiology of syphilis, it is difficult to understand how the heart and the great vessels can ever escape involvement."

It is a common experience in busy syphilis clinics for the cardiovascular damage to be overlooked perhaps not even searched for, until the patient himself complains of some rather definite and suggestive symptoms. Perhaps the requirements for a diagnosis have been too rigid, perhaps the diagnostic methods are yet too crude to detect many of the syphilitic lesions early, or possibly the acu-

men of the clinician is at fault. At the syphilis clinic of the Rhode Island Hospital it was felt that a higher percentage of luetic cardiovascular damage would be revealed by some system which would permit a fairly comprehensive examination with the cardiovascular system especially in mind. The previous method and one still used in many busy clinics, does not permit time for the physician who is directing the treatment of the syphilitic patient to make physical examinations. With fifty or more patients to supervise at each session it became almost necessary for the syphilologist to delegate the routine physical examination to other persons. As time went on it became routine for the physical examinations to be done in the medical clinic or not at all; thereafter the patient might continue for years in the syphilis clinic without ever being examined again until or unless he himself requested it. Inevitably a number of patients going through the routine, vigorous anti-luetic treatment, did badly on account of the well-known fact that syphilitic aortic disease frequently becomes greatly aggravated by arsenicals. This state of affairs was recognized as not desirable from many points of view by the chiefs and workers in the syphilis clinic of the Rhode Island Hospital, Outpatient Department and they welcomed the opportunity of having a division of the clinic devoted to the segregation and special supervision of patients with luetic cardiovascular damage.

In January, 1934, this new division began its service and since then has had the most friendly and helpful cooperation by all the workers. Attempt has been made to examine every patient who came to the syphilis clinic regardless of age, practically all of whom are known to have or to have had syphilis. Although the syphilis clinic itself is in operation three days a week, the cardiovascular division has functioned once per week, on Mondays, and has been uninterrupted during the past six years except for very brief periods.

Read before the one hundred and twenty-ninth Annual Meeting of the Rhode Island Medical Society, Providence, June 5-6, 1940.

It is the duty of the nurse in charge to see that each patient, new or old, is examined, and whenever a patient is selected for supervision his record card is stamped with a device which is intended to bring attention to the fact that he has syphilitic heart disease and is only to be cared for in the cardiovascular division.

1047 patients have been examined at least once. About 200 of them have been examined a number of times and many will be re-examined about every six months as long as they come to the clinic. Re-examinations are done on all patients with hypertension, with any kind of a murmur, with questionable heart symptoms or signs, and on many of those beyond fifty years of age. During the first week in May, 1940, there were in the syphilis clinic 521 so-called active patients, that is, patients who are supposed to be under the constant supervision of the clinicians. There were 48 patients with congenital syphilis, 18 males and 30 females, 13 under ten years of age, 19 between ten and twenty, 5 between twenty and thirty years of age and one between forty and fifty. None of these have any signs of cardiovascular lues. In view of the fact that about half of them have had syphilis, congenital in origin, for fifteen or more years it seems that young vascular tissues are particularly resistant to the activity of the spirochete.

There were 217 males and 256 females with acquired syphilis. This total of 473 victims of acquired lues includes 37 patients in the cardiovascular division, a percentage of 7.8. This is not, however, a true picture of the percentage since 21 additional patients with cardiovascular damage are inactive by reason of death, or removal elsewhere. Among the 1047 who have been examined there have been 58 segregated for supervision and treatment in the cardiovascular division, a percentage of 5.5. This 58 in relation to the 521 active patients in the clinic, represents more than 11 per cent. These three percentages also serve to illustrate how easy it is for one to arrive at the figures he may wish to emphasize. A more significant computation is to separate the patients in the clinic by age. Of the 521 active patients 229 are under forty years of age; 3 of them have luetic heart disease, a percentage of 1.3; 292 of them are over forty years of age; 34 of them have luetic heart disease, a percentage of 11.6, illustrative of the fact that cardiovascular syphilis is uncommon under the age of forty.

In the 1670 patients of the six clinics in Rhode Island 819 were over forty years of age. In the same proportion there should be in the State's 4480 luetic patients 2194 over forty years of age. On the basis of the figures from the 521 patients at the Rhode Island Hospital clinic there should be in the state 283 patients with syphilis of the heart and aorta.

Among the 217 living males with acquired lues at the Rhode Island Hospital clinic are twenty with cardiovascular damage, while the 256 females includes seventeen with similar lesions. There have been seventeen deaths, thirteen males and four females. The four patients lost track of are males. Thus, among 234 males there were 37 with cardiovascular lesions, while 260 females included only 21 in this category. It is evident that the male is not only more susceptible to luetic cardiovascular damage than is the opposite sex but that he also is less able to withstand it. This is no doubt due, in part, to the greater physical strain which the average male undergoes.

Among the estimated 283 patients in the State with luetic cardiovascular damage, perhaps unrecognized, it is probable that approximately 180 are males with a poor prognosis.

In respect to the relative incidence of syphilis in whites and Negroes our figures are distinctly different from most published statistics. Of the 521 patients 80 are Negroes, approximately 15 per cent, while 7 of the 37 patients with cardiovascular damage are colored, equalling about 19 per cent. The 7 colored luetic heart patients in relation to the 80 colored patients is less than 9 per cent, while the figure among our white patients is slightly less than 6 per cent. Most published evidence shows that cardiovascular syphilis is three times as frequent in the colored man as in the white. Our conclusion about this has to be that our figures are altogether too small for comparison or else Northern Negroes are not nearly as susceptible to cardiovascular damage as the Southern Negro, from whom most of the data have been obtained.

The 58 patients with cardiovascular syphilis were classified as follows: pure aortitis, 7 living, 3 dead and one lost track of; aortitis with slight aortic insufficiency, 7 living, one dead and one lost; aortitis with marked aortic insufficiency, 13 living, 8 dead and one lost; aneurysm of the thoracic aorta without aortic insufficiency, 4 living and 5 dead; aneurysm of the thoracic aorta with aortic insufficiency, one living; miscellaneous, 5 living and one lost.

The ages of these 58 patients at the time the cardiovascular damage was first diagnosed were as follows: in the decade from 30 to 40 there were 4, from 40 to 50 there were 15, from 50 to 60 there were 27, from 60 to 70 there were 10, above 70 there were 2. The average age at death was 54, the youngest was 39, the oldest was 71. The average length of treatment in the cardiovascular division of those who died was slightly above two years. About half of the living patients have been in this division for five years and are still in relatively good physical condition.

It is impossible from our data to know how many years elapsed between the initial infection and onset of demonstrable cardiovascular damage since most of the patients denied any knowledge of initial lesions. After considerable experience in attempting to uncover the probable source of the original infection it has been found an almost hopeless task, and it seems that most of them are telling the truth when they declare their ignorance of the original infection. Many of them come from marital contact, there are always a few that swear that there has never been any sexual intercourse except with the marital partner yet the partner is uninfected, there are a few who at first deny having had syphilis years ago, but after becoming better acquainted will, in a mood of confidence, admit that they were actually treated for a short time in early life. The youngest patient in our group was 31 years of age, when, in 1930, he was found to have a positive Wasserman and said that he had a chancre about one month before, but he also had a urethral discharge about one month before he had the chancre. He had heavy treatment for a year or so without effect on his serology. He then neglected treatment and returned in May, 1935 complaining of considerable palpitation and definite precordial discomfort. An examination then showed all the signs of aortitis with aortic insufficiency, approximately five years after the initial infection. This patient is now forty years of age, feels well, has the same signs, his serology still shows a positive Wasserman and Hinton. He seemed sick every time he was given neo-arsphenamine and has had more or less continuous bismuth therapy. There has been no appreciable change in his cardiac signs in the last four years but there has been marked improvement in symptoms. Several reports of very early cardiovascular involvement in syphilis have been

made, in one young man three months after the infection; in another patient, death from rupture of the damaged aorta before the secondary eruption was fully developed.

In an attempt to observe whether the treatment of early syphilis is an efficient prophylaxis of cardiovascular syphilis, the 58 patients were reviewed from that point of view. None of them, with one exception, had been treated until a comparatively short time before the diagnosis of the cardiovascular condition. This is, of course, of negative value in answering the question, but since only one of them had been treated, and inadequately, for early syphilis it seems likely that the proper treatment of early syphilis is good prevention. Statistics compiled by the United States Public Health Service have shown that the adequate treatment of early syphilis will almost surely exempt the patient from cardiovascular involvement. Among 3,641 cases treated during the early stages of the disease less than one per cent subsequently developed this late and crippling manifestation.

It is a matter of interest to observe the incidence of hypertension in the patients who have aortic insufficiency. It has been stated that hypertension, of moderate degree at least, is frequently a compulsory phenomenon associated with the aortic lesion and with hypertrophy of the left ventricle. Of the 31 patients with luetic aortic insufficiency only seven had hypertension with systolic levels constantly above 160 mm. of mercury, which would seem to suggest that the hypertension was more or less coincidental rather than compensatory. All but 4 of the 58 patients continued to show serologic evidence of syphilis. This may be due in part to the fact that they could not have the repeated and heavy treatment which non-cardiovascular damaged patients could have but seems more likely to be due to the fact that these patients have severe syphilis in a particularly resistant form. Spinal fluid tests were not done on many of these patients but only one of the 58 showed definite signs of syphilis of the central nervous system. From the reports of the United States Public Health Service it would be expected that 25 per cent or more of patients with luetic cardiovascular damage would be found to have concomitant central nervous system syphilis. For this reason it is recommended that spinal fluid examinations become a routine in this class of patients.

The treatment of these patients could not be rigidly standardized because of their varied conditions when first becoming members of the special group. Some of them had had two or three years of treatment, not treatment of early syphilis but two or three years treatment of late syphilis. Some of them had already had heavy dosage of arsenicals and metals. Some patients were in very poor physical condition and others were in quite a good state. So far as possible the treatment is started with a series of intramuscular injections of bismuth sodium tartrate, 2 cc. of a 1½ per cent solution. If there are no contra-indications the dosage is soon stepped up to a weekly injection of a 3 per cent solution. If the patient does well as judged by improvement in symptoms or at least by lack of obvious progression after approximately 20 to 25 injections then neoarsphenamine by vein is instituted in a dosage of .1 gm. If 4 doses of this are well borne the dosage is then stepped up .05 gm. and so on until the maximum dose of .45 gm. is reached. If all goes well the patient is given a vacation of three months and then the whole process begins again with bismuth sodium tartrate followed by sulpharsphenamine or, occasionally by mapharsen.

About one-fourth of the patients received no arsenicals either because they did badly and it did not seem wise to give it to them or for other reasons, about one-fourth of them received small doses of neo-arsphenamine and did never receive large doses because they did not stand it well, and about one-half of them were given the routine as outlined. While several patients complained of being made ill and feeling tired and nauseated and generally worse after arsphenamine there was only one true Herxheimer reaction. The disastrous results which have followed the use of larger doses of the arsenicals and more particularly have followed institution of treatment with an arsenical without preliminary heavy metal therapy are supposed to be due to an acute oedema occurring in a diseased area with immediate mechanical weakening. There are slower forms of reaction leading to a more gradual change so that sometimes the patient's symptoms at first seem to improve but later become notably aggravated. This has been ascribed to a too rapid healing of the inflamed luetic area resulting in fibrosis, contraction and distortion.

The signs indicating that the patient was not doing well under the arsenicals usually consisted of

an increase in the heart rate, in aggravation or onset of congestive failure, the presence of severe dyspnea and feelings of palpitation, and in one instance death shortly after treatment. One does not have to see patients doing poorly under neo-arsphenamine many times before he adopts a very cautious attitude in its use. Practically all of the patients experience symptomatic improvement as the result of this careful treatment. Of course those who have congestive failure when first seen are treated as any other cardiac patient would be and these for the most part are the ones that receive only the bismuth. It is impossible to prove by our figures that the treatment prolonged the life of any of these patients, but to see them improve and get along well under treatment whereas they were not doing well before is sufficient to convince one of its value. In this connection it may be stated that where there have been adequately controlled figures it has been found that treatment has increased the duration of life after detection of the cardiovascular damage from 34 months or about 3 years to 85 months or about 7 years in cases of aortitis without severe complications such as marked aortic insufficiency or aneurysm.

The patients whom we diagnosed as having pure aortitis had (1) X-ray evidence of aortic dilatation, (2) the classical tympanitic, hollow, liquid, so-called tambour accentuation of the aortic second sound, (3) a history or symptoms of circulatory embarrassment. Certain authorities add three criteria to these, namely, progressive cardiac failure, substernal pain and paroxysmal dyspnea, and they say that the presence of three or more of these six signs and symptoms in a syphilitic patient under fifty years of age, free from mitral disease and in the absence of hypertension, is strong evidence for the diagnosis of uncomplicated syphilitic aortitis, and that presence of any two of them renders the diagnosis probable.

Patients with uncomplicated aortitis bear well the routine treatment of the cardiovascular division and usually experience a striking diminution in symptoms which when present, often consist of an anginal type of substernal pain with or without rapid heart action and a sense of palpitation. The physical signs are apt to indicate little or no progression of the luetic process; in one patient an aortic insufficiency developed while under treatment.

Patients with slight aortic insufficiency seem to do well as the result of treatment, judging by the apparent slow progression of the physical signs.

The patients with marked aortic insufficiency have had questionable benefit from the anti-luetic therapy, and a considerable proportion of them have had little or none of this treatment, not standing it well, but a few have seemed to derive some degree of symptomatic benefit and seem to be in no immediate danger of heart failure. The manner of death in each instance but one, who died suddenly, consisted of ordinary congestive failure and occurred within fourteen months after the first definite signs of left ventricular weakness. About half of the patients in this group require rations of digitalis.

It is especially difficult to evaluate the effect of treatment in aortic aneurysm since even without treatment the lesion often remains unchanged for long periods. Anti-luetic therapy must be most carefully supervised in these patients on account of the danger of a "therapeutic paradox" wherein the otherwise beneficial effect of arsenicals weakens the diseased aortic wall with resultant rupture. Bismuth therapy is comparatively safe and is of unquestionable benefit in some cases. Occasionally an arsenical may also be used to good advantage as illustrated by a woman of 66 years of age with an aneurysm of the arch and ascending aorta who was first seen in the tumor clinic in 1934 on account of a swelling just above the inner end of the right clavicle. This pulsating tumor rather rapidly progressed in size until treatment was begun about 6 years ago; since then there has been no notable increase in its size. There is almost certain erosion of the upper portion of the sternum, but she has had no pain since the first few months of treatment which consisted of a great deal of bismuth and two courses of neo-arsphenamine. Another taught us a lesson. She was a widow of 52 who at the age of 49 had a syphilitic lesion on a forearm and started therapy for it in 1932. She had no symptoms referable to her cardiovascular system, but in 1934 examination in the clinic showed unusual heaving impulses in the supracardiac area especially to the left. No murmur and no thrill were detected. The X-rays showed a huge aneurysm of the arch and descending aorta. Subsequent to the X-ray examination she was studied under the fluoroscope and apparently enough was said in the hearing of the

patient to make her aware of her condition. The next morning's paper carried an account of her death by suicide. The social service department investigated and found that she left a note to the effect that she had judged from her examination that her condition was hopeless and decided to end it all. This indicates the need of being very careful that the patient hears only what is good for him to know, especially in the case of luetic disease which has a particularly devastating effect on the morale of its subjects.

The patients classed as miscellaneous are those who have syphilis, are in the age decades when luetic heart disease is most common, have signs or symptoms which could be due to luetic heart disease but also have other lesions which might possibly account for their difficulty. Examples of these are a man of 56 years with marked hypertension and the signs of aortitis including dilatation of the aorta which could be caused by the hypertension alone. A second man had signs of probable aortitis and angina pectoris without hypertension, but the signs were not as definite as in some other patients. A third at 58 had definite generalized arteriosclerosis with aortic insufficiency and with auricular fibrillation. Was his aortic insufficiency luetic? It could have been due to the arteriosclerosis. A fifth patient of more than 40 years of age, a colored man with aortic insufficiency also had rheumatic mitral stenosis. Apparently this was not an Austin Flint phenomenon but a true rheumatic heart, he had lues, he had aortic insufficiency; was it rheumatic, was it luetic? A sixth patient of 63 has aortic insufficiency and questionable signs of aortitis. The seventh with no definite valve lesions, no hypertension, no unusual sclerosis of his arteries, no definite coronary artery disease, has syphilis and myocardial failure of both ventricles; is an instance of luetic myocarditis? These patients are the ones in whom it is difficult to make a positive diagnosis but who certainly deserve special consideration, and who, in order to play it safe, should be classified as having luetic heart disease.

A diagnosis of luetic myocarditis has not been made in any of these patients. The valvular and vascular lesions produce strain on the heart muscle with resultant myocardial failure, but the actual invasion of the myocardium by the spirochete, although reported by pathologists in some parts of the country, is seldom encountered in New Eng-

land, and perhaps is not often searched for. That gummatous lesions occasionally invade the heart muscle and the coronary system is well known but gummata in these locations, as elsewhere, disappear under effective therapy and are rarely found at autopsy. Although criteria for the clinical diagnosis of luetic myocarditis have been expounded in some of the Southern clinics where there are many Negro patients we have been content here to consider such a lesion as a possible factor in some of the patients in the miscellaneous group.

The foregoing observations of luetic cardiovascular disease in a special division of one clinic, and specially the fact that almost all cardiovascular syphilis is discovered after the damage is done, has implications extending beyond the 4,480 patients known to be under treatment in Rhode Island. How many others are there undetected, untreated and unreported? In 1939 the number of patients reported to the State Department of Health as new

cases was 1,230; yet only 42 were classified as primary and 108 as secondary. This 12 per cent of early cases contrasts strangely with the 21 per cent reported in the years 1932 to 1935, inclusive, and stands as a distinct challenge to medical educational forces. All syphilis should be detected and treated but a special attempt should be made to diagnose it early in its course. Luetic cardiovascular damage can be prevented by (1) detection of early syphilis, (2) adequate treatment of early syphilis and (3) detection of cardiovascular lues in its earliest stage.

Grateful acknowledgement is made of the co-operation of Mr. Thomas B. Casey of the Rhode Island Department of Health, Division of Communicable Disease Control, and of the social service departments of the venereal disease clinics. A publication of the U. S. Treasury Department, Public Health Service, "Cardiovascular Syphilis" has been quoted freely.

RHODE ISLAND STATE DEPARTMENT OF HEALTH

THE PRESENT STATUS OF THE STATE'S PNEUMONIA CONTROL PROGRAM

As a result of recent advances in the treatment of pneumococcus pneumonia, the number of deaths in our state from this traditional enemy of mankind during the past two years has shown a decided decrease. This decrease in the roll of deaths from pneumonia may be expected to continue to just the extent to which physicians familiarize themselves with the available methods of etiological and physical diagnosis and the proper indications for serum and chemotherapy. While the recent identification of the thirty-two types of pneumococci and the production of specific antiserum for each type together with the revolutionary development of at least two specific drugs — sulfapyridine and sulfathiazole — adds to the physicians' armamentarium a great opportunity to save lives, yet at the same time it also places a great responsibility upon both the health agencies and the practitioners of medicine to see that these newer methods of treat-

ment are not only available to all suffering from pneumococcic infection, but also that these remedies are utilized in the best manner possible.

In the fall of 1939 as a result of savings effected earlier in the year, funds were available to enable the State Department of Health to furnish free anti-pneumococcic sera of all 32 types to all physicians for the treatment of patients financially unable to purchase the serum. Nine General Hospitals in the state acted as distributing stations carrying the more common types, while the rarer types for which but little call was expected were available in the Division of Narcotic Drugs and Pharmacies at the State Office Building. For the present year arrangements have been made with the Charles V. Chapin Hospital to act as a distributing center for the rarer types of serum whenever the State Office Building is closed; i. e., Saturdays, Sundays, nights and holidays.

PNEUMONIA DEATHS — STATE OF RHODE ISLAND

For the Period December to May, 1933-1940
NUMBER OF DEATHS

Season of	Broncho-Pneumonia	Lobar and Unspecified	Total
1934	134	264	398
1935	116	250	366
1936	142	321	463
1937	173	325	498
1938	168	246	414
1939	125	175	303
1940	114	132	246

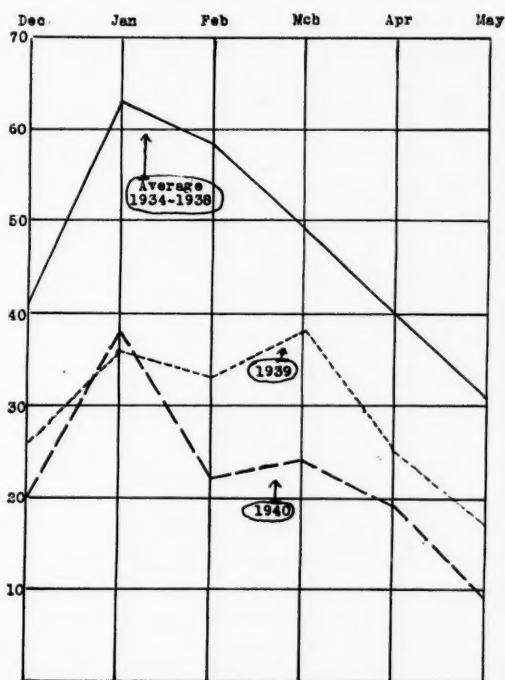
At the request of the Director of Health, the President of the Rhode Island Medical Society, Charles H. Holt, M.D., appointed an advisory committee on pneumonia control to assist in planning the details of distribution. This committee consisted of the following physicians: Alex M. Burgess, M.D., Morgan Cutts, M.D., Charles F. Gornly, M.D., John F. Kenney, M.D., and William S. Streker, M.D.

The plans worked out by this committee have proven eminently satisfactory and the committee has been continued and recently has formulated plans for the distribution of both sulfapyridine and sulfathiazole on the same basis as anti-serum is distributed. The members of this committee also offered their service in an advisory capacity to any physician wishing advice in the administration of serum or chemotherapy.

In 1935 the Neufeld rapid method of typing was adopted and the following year a 24 hour typing service was established. The newer drug therapy requires rather close laboratory check to establish the proper blood concentration and to detect possible contra-indications before such signs become clinically apparent. For this reason the patient should be hospitalized. However in those cases which must be treated at home and for which private laboratory service cannot be secured the state laboratory offers all necessary chemical and pathological examinations.

There has been a gradual yet steady decline in the death rate from pneumonia since the turn of the century. The average annual death rate for the five year period, 1900-1904 was 185.2 per 100,000 population. Since 1930 the annual rate has been below 100 and in 1939 it was 59.7. While the steady decline is undoubtedly due to more than one factor, better therapeutic procedures have been an important factor.

For the purpose of comparing the number of deaths from pneumonia during the pneumonia season of the past two years with the previous five year period a table and a graph are attached. A glance at these tells the story. In 1939 the decrease in deaths from lobar pneumonia was 38 per cent, while in 1940 the decrease was 53 per cent.



Graph showing Number of Deaths from Lobar Pneumonia in Rhode Island for the Periods Indicated.

A study of the table shows that no significant changes have taken place in the mortality from broncho-pneumonia. In a recent official publication of an advisory pneumonia control committee the following statement occurs: "Some authorities attribute 25 per cent of atypical (broncho) pneumonias to the pneumococcus; other surveys place such percentage as high as 65 or even 80 per cent." Is it possible that the absence of any decrease in deaths from broncho-pneumonia may be due to a lack of appreciation on the part of physicians that the pneumococcus is very frequently the etiological factor in broncho-pneumonia as well as in the lobar type?

THE RHODE ISLAND MEDICAL JOURNAL

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POSTGRADUATE EDUCATION IN RHODE ISLAND

A generation ago it was usually necessary to go to Boston or New York to find clinics, conferences, lectures, postgraduate courses, or any of the presentations of recent advances in medicine. In those days most of our education was found in medical journals, our local medical association meetings, and occasional meetings of medical societies in some large city.

During the last ten years the staff rounds and clinical conferences at our hospitals have developed into meetings of great value. In these groups, when men of ability have been willing to take the time to arrange for good meetings, the sessions have been remarkably good.

This development is so recent that many of us do not realize the opportunities that are open to us. During the last year the Providence Medical Association has been publishing each month a schedule of clinics and staff conferences in Providence and Pawtucket. Any physician is welcome at these meetings and will find at most of them important and timely problems well presented.

Nothing is more important in our work than a familiarity with the best work that is going on about us. This knowledge whets our interest in studying patients and the literature. It arouses our pride to lead in knowledge and skill. Very few of us can reach our full capacity without the encouragement and stimulation of personal contact with others who are doing first class work in our own lines.

Any physician who attends a good conference regularly once a week can be sure that in the field covered by the conference he is a well educated man.

Clinical Pathological Conference

MEMORIAL HOSPITAL, PAWTUCKET, R. I.

February 14, 1940

Case Presented by Dr. Edward H. McCaughey

No. 49049, Medical Service. E. L., American born, female, married, age 66, was admitted to the Memorial Hospital October 5, 1939. Her chief complaint was frequency of urination.

Patient was well until about four years ago at which time she started having frequency of urination. She states that she got up during the night every fifteen minutes. At that time she consulted her family physician who advised her that she had diabetes and that she should learn to take and use insulin. However she was afraid to use the needle, so, although she bought a syringe, she never used it. During the past four years she has gradually become worse, having a lot of pain, and burning urination as well as frequency. She states her thirst was tremendous. She has never liked to eat a lot of sweets. Two weeks ago patient became so weak she was willing to follow treatment so was started on insulin and diet by her family physician. Hospitalization advised for regulation.

Past history shows no serious illness, no operations, no use of tobacco or alcohol.

Father and mother are dead, five brothers and one sister living and well. Diathesis negative.

Symptomatic History: There is some palpitation, cough and dyspnea, on slight exertion. Appetite good, bowels constipated. Used to have spells of nausea and vomiting; none recently. Pain, burning and frequency of urination, as above.

Physical Examination: A well developed but very poorly nourished elderly white female who is lying comfortably in bed. Examination essentially negative except for:

HEART: Left border of cardiac dullness 12 cm. from midsternal line. There is a systolic murmur heard over the apex. A2 is greater than P2.

ABDOMEN: Flat. Thin. Liver, kidneys and spleen not palpable. There is a suprapubic mass about the size of a large grapefruit which is dull to percussion. Regular in outline. Tender to palpation. Patient states she passes urine when mass is pressed. **GENITALIA:** Labia and vulva are inflamed, reddened and very painful. The urethral orifice is inflamed.

VAGINAL EXAMINATION: The whole vaginal canal is inflamed and very tender. Due to the enlarged

bladder and tenderness, examination could not be carried out.

RECTAL EXAMINATION: Good sphincter tone. No hemorrhoids. Some tenderness. Cervix, uterus and adnexa could not be palpated due to enlarged bladder.

IMPRESSION: 1. Diabetes Mellitus
2. Acute Vaginitis
3. Chronic Urinary Retention
4. ? Fibroid Uterus

CONSULTANT: 11/2/39. To the: Urological. Remarks: Patient entered hospital with urinary retention. Has been passing blood since entry. This has increased in amount the last few days.

REPORT BACK: 11/3/39. From: Urological. Cannot give a worthwhile opinion until patient is cystoscoped. Would recommend same.

X-RAY REPORT: 11/4/39. Examination of the abdomen shows a group of ring shadows, consistent with faceted gall stones. There were also some opaque shadows across the upper lumbar spine and left upper quadrant, the nature of which could not be determined at this time.

OPERATION RECORD: 11/4/39. Operation performed: Cystoscopy. Upon inspection externally extensive caruncle at meatus protruding outward. Attempt to pass cystoscope but unable to on account of a narrow urethra, necessitating dilatation to a no. 24 sound, whereupon a no. 24 cystoscope was passed, large amount of old thick bloody urine evacuated. Several washings needed with irrigating fluid. Could not be cleared enough to see exact condition. There appeared to be a cystocele growth on right side of bladder, another portion on left side. Would recommend irrigations with verigole solution, followed by 1 oz. 15% argyrol p.d. I would advise removal of urethral caruncle with pontocaine anesthesia.

BLOOD TRANSFUSION: 11/11/39. Amount given: 200 cc.

11/17/39: Vaginal examination done at accident room after preliminary dose of Morphia gr. 1/6.

Outlet: Urethral Caruncle. Anterior and posterior vaginal walls firm. Glands negative.

Cervix: Lacerated, short, bound down, not markedly tender. One small area on left side that bleeds easily, not markedly friable.

Corpus: Anterior. Markedly enlarged. Irregular, firm. Corpus cannot be moved.

Adnexa: No definite masses made out. There was a thickening of the broad ligaments of both sides.

Impression: 1. Fibro-miomata of uterus. 2. Urethral Caruncle.

Patient still cannot control urine.

CONSULTATION: 11/18/39. To the: Surgical. Remarks: Pelvic Mass and Caruncle.

REPORT BACK: 11/20/39. From: Surgical. Large caruncle, mass in pelvis. Probably malignant bladder. Suggest deep x-ray or radium if condition permits. Also cystotomy could be considered.

Laboratory Reports:

BLOOD CHEMISTRIES:	URINARY SUGAR:
10/6/39: Sugar 285 mg. per 100 cc., Urea Nitrogen 30.36 Creatinine 2.1	++
10/7/39: Sugar 272 mg. per 100 cc.	++
10/9/39: Sugar 316 mg. per 100 cc.	++
10/10/39: Sugar 266 mg. per 100 cc.	0
10/12/39: Sugar 103 mg. per 100 cc.	0
10/14/39: Sugar 83 mg. per 100 cc.	0
10/16/39: Sugar 196 mg. per 100 cc.	0
10/18/39: Sugar 121 mg. per 100 cc.	0
10/20/39: Sugar 222 mg. per 100 cc.	0
10/23/39: Sugar 200 mg. per 100 cc.	0
10/25/39: Sugar 125 mg. per 100 cc.	0
10/27/39: Sugar 91 mg. per 100 cc.	0
10/30/39: Sugar 74 mg. per 100 cc.	0
11/2/39: Sugar 74 mg. per 100 cc.	0
11/4/39: Sugar 49 mg. per 100 cc.	0
11/6/39: Sugar 54 mg. per 100 cc.	0
11/9/39: Sugar 43 mg. per 100 cc.	0
11/13/39: Sugar 67 mg. per 100 cc.	0
11/18/39: Sugar 280 mg. per 100 cc.	0
11/21/39: Sugar 444 mg. per 100 cc., Urea Nitrogen: Q.N.S.	0

SMEAR-CULTURE: 10/5/39.

Culture-Smear from: Urine. For: Bacteria.

Report: 10/6/39 — No growth.

10/7/39 — Rod — Large spore.

BLOOD COUNTS: 10/5/39.

Hgb. 70; R.B.C. 2,750,000; W.B.C. 5,400; Neutro 60; Eosin 1; Baso. 1; Lymph 33; L.M. 5.

11/18/39: Hgb. 70; R.B.C. 2,980,000.

WASSERMAN AND HINTON: 10/11/39.

Cholesterinized Antigen: Negative.

Acetone Antigen: Negative.

Hinton: Slight positive.

BLOOD TYPING: 11/8/39.

Blood Type: II (Moss).

Progress: The patient's condition on admission and shortly thereafter remained poor. There was a slight improvement following transfusion. Following the temporary effects of this, the condition grew progressively worse until death on November 22, 1939.

Dr. Sprague: This case was rather interesting. I sent this patient in and Dr. Kerney being away I

was called upon to say something about it. I first saw this patient in December 1935. She was complaining of excessive thirst, pain in lower abdomen, loss of 65 pounds in the past year, headaches, and itching of the vulva. Urination was frequent and enormous in quantity. No history of serious illnesses. Always enjoyed eating. Appetite good. Bowels regular. In 1935 her eyesight was not good. Worse lately.

Physical examination revealed a woman of the age noted. Tongue dry. Teeth false. Heart sounds regular. Blood pressure 205/90. Abdomen very obese. Negative for definite painful areas. Slight dullness in the left lower quadrant. Vagina was normal except for excessive inflammation of the vulva. Uterus was small. Urine showed four plus sugar; negative for albumin at that time. At that time she was advised to take insulin and such was prescribed. Medication towards reduction for hypertension was also given. She did not come back for observation. I did not see her again until October 1939. At this time she was markedly emaciated, weak, poor vision, complaining of frequent and burning urination. Stated that she had lost 35 pounds during the past year. Blood sugar 421. She would not be hospitalized. Her relatives, not particularly of the intelligent type, were not able to convince her. The only thing to do was to have a district nurse go in which was done. For a few days, I believe the nurse did go in but she got sick of that and the people got sick of having her around the house. She was sent to the hospital finally at the request of the people. When I examined her at that time at her home she had a definite mass in the lower abdomen. Otherwise, she seemed to be in the last stage of a diabetic condition. A consultation was asked from the urological service on the third of November. She was cystoscoped on the morning of the fourth by Dr. J. E. Kerney.

Dr. Kenney: The reason that you could not possibly do a cystoscopy was that she had such an extreme vaginitis at the time. We could not even attempt the cystoscopy at the time and we could not get the desired information.

Dr. Chapian: I did not see the patient at the time. I think one of the interesting features of this case from the urological point of view is that one can easily be misled by the presence of diabetes and ascribe the urinary symptoms entirely to that disease. As we study the history of the patient we see that this patient had considerable pain and burning

on urination which gradually became worse and increased in severity. She had frequency of urination which gradually became worse and she urinated every 15 minutes. I think that in the uncomplicated polyuria of diabetes, the patient passes large amounts of urine and as a rule is free of burning or dysuria. I think that some men might ascribe the symptoms entirely to diabetes and overlook any pathology going on in the urinary tract proper.

Dr. Hussey: I would like to ask Dr. Sprague and Dr. Chapian if in the event of unsuccessful attempts at cystoscopic examination, an intravenous urography might not have been of some value.

Dr. Sprague: I think that an intravenous would have been of value in the case but her condition was so bad that anything done to her seemed to be breaking down whatever resistance she might have. It has been my experience on diabetic cases which have frequency, urgency and extreme vaginitis accompanying it, that these symptoms have cleared up after insulin and proper dietary regime.

Dr. Shaw: Can you explain the blood sugar? It was down to 43. Did she have insulin shock?

Dr. Kenney: No. Many times patients get down that low without insulin shock; it is not necessarily so. It is surprising how low they can get without an insulin reaction. I have several cases now, and have had a number of cases come in in the last year or two where the doctors have sent them in here to have an amputation. Where there is no infection of the soft tissue, we do not go ahead and amputate until we are absolutely sure that we cannot get them sugar free. Rabinowitz one of the best men in diabetes, and who has a vast experience, feels that in these cases, if you can make your patient sugar free and keep him sugar free fairly rapidly, this patient will clear up. The way to treat a diabetic with protamine insulin is to keep this patient sugar free in the morning. A diabetic with infection you can give patient protamine insulin and follow along with old insulin at noon and night; if necessary, more than that. You must keep that patient sugar free. If you give a patient over 40 units in the morning you may find that this patient requires more than 40 units. You can bring a patient way down without any insulin shock.

Dr. Shaw: You are referring to patients with diabetic gangrene?

Dr. Kenney: I have a patient a woman whom I have followed along for five years (Mrs. P.). She had a fairly good osteomyelitis. The woman now is able

to walk without even a cane. She is down to 20 units of regular insulin, took her diet religiously and has no trouble.

Dr. Kenney outlined the routine on diabetic cases admitted to the Medical Service of this hospital, stating that it has corrected the return of patients shortly after discharge with sugar again. The patient is given instructions as to diet and aftercare on the ward before leaving the hospital.

Dr. Benjamin: Dr. Hussey asked why intravenous urography was not done in this case. Nevertheless, it should be kept in mind that this is exactly the type of condition where a retrograde cannot be made, intravenous urography is a great help and usually has very few contraindications.

Regarding arteriosclerosis in the roentgenograms of the feet. I think that the clinical interpretation of an x-ray finding of arteriosclerosis has to be taken with a certain degree of caution. I do not think that a patient's arteries are more abnormal than any other patient of that age. If we took every diabetic 50 years or over, we would find a certain amount of sclerosis anyway. That is what happens in the diabetic. It is not the intima nor the adventitia of the blood vessel, it is the media and the external and internal elastic membrane in that blood vessel that become calcified. Very often the patient has pain due to the increased pressure and is referred particularly to the legs. They don't get the elasticity. Finally, when it hardens altogether that is when you get the gangrene. You would have to take that into consideration clinically.

Dr. Hussey: The mere fact that you find a vessel does not give the size of the lumen. You cannot tell if it is plugged or not.

Dr. Benjamin: The only method that is coming into usage is arteriography, by direct injection of the arteries. When an amputation is to be considered and the surgeon wants definite information, it can be obtained by arteriography.

Dr. Kenney spoke about Professor McMann at the New England Medical Center who has been measuring these blood vessels in different parts of the body and is doing particular work on the renal blood vessels, measuring the lumen post mortem or at any time that he could do it. He is trying to get a system where he can tell the lumen of these vessels.

Dr. Hussey: I was wondering if the intravenous urography could not have been done on 11/4/39 when the cystoscopy was done.

Dr. Kenney: Perhaps her condition became such that he could not do it. That would have been the time to do that.

Dr. Chapian: An intravenous might have given some valuable data right after the cystoscopy.

Dr. Kenney: The autopsy findings on this case were: Chronic passive congestion of the spleen and liver; hypostatic pneumonia; diffuse papilloma of bladder; hydro-ureters; and hydronephrosis, bilaterally.

PROVIDENCE MEDICAL ASSOCIATION

December Meeting

A regular meeting of the Providence Medical Association was held at the Medical Library on Monday, December 2, 1940. The meeting was called to order by President John G. Walsh at 8:35 P. M. The Secretary read the minutes of the preceding meeting which were approved as presented.

The Secretary reported for the Executive Committee as follows:

That in accordance with the By-Laws whereby it is required that the Executive Committee "shall act as a nominating committee and present at the meeting next preceding the annual meeting a list of officers to be elected at the annual meeting. Any counter nominations from the Association must be in writing signed by ten members of the Association, and delivered to the Secretary at least ten days prior to the Annual meeting."

Therefore the Committee proposes the following slate of officers for the year 1941.

For President: Murray S. Danforth, M.D.

For Vice President: Henry E. Utter, M.D.

For Secretary: Frank B. Cutts, M.D.

For Treasurer: William P. Davis, M.D.

To Executive Committee, for terms of five years each: John G. Walsh, M.D.; Patrick I. O'Rourke, M.D.; *to fill unexpired term of Dr. Frank B. Cutts, three years:* William B. Muncy, M.D.

For Trustee of the Rhode Island Medical Library, for one year: William P. Buffum, M.D.

For Councilor to the Rhode Island Medical Society, for two years: Alex M. Burgess, M.D.

For Delegates to the House of Delegates of the Rhode Island Medical Society: Drs. Daniel V. Troppoli, Maurice Adelman, Francesco Ronchese,

George F. White, Meyer Saklad, John A. Hayward, Harry C. Messinger, Ernest W. Bishop, Charles L. Southey, Henry F. McCusker, William P. Buffum, James Hamilton, John C. Walsh, Merle M. Potter, James H. Fagan, Kalei K. Gregory, Walter S. Jones, David Freedman, Raymond F. Hacking, Murray S. Danforth, Frank B. Cutts, Ralph Di-Leone, Joseph B. Webber, Frank J. Honan, Clarence E. Bird, and Robert H. Whitmarsh.

The motion was seconded and passed that the report of the Executive Committee be accepted.

The Secretary reported that the Executive Committee recommended for election to active membership the following men:

Irving Blazar, M.D.
James H. Crowley, M.D.
Phyllis A. Moola, M.D.
Angelo G. Valentino, M.D.
George L. Wadsworth, M.D.

On a motion from Dr. Jesse P. Mowry, which was seconded and passed, these men were elected to membership.

The President announced the appointment of the following obituary committees: To prepare the obituary of Dr. John J. Kenney, William McGuirk and William S. Streker; and to prepare the obituary of Dr. Thomas J. Smith, John E. Donley and Charles F. Gornly.

Dr. Adolph Eckstein reported two unusual cases. The first was a case of erysiploid in a butcher, due to bacillus of swine erysipelas, the second was a case of tularemia occurring in a rabbit hunter.

The President introduced as the guest speaker of the evening Dr. Shields Warren of Boston, who presented a talk on "Medico-Legal Aspects of Malignant Diseases." The presentation of Dr. Warren was discussed by Drs. Herman C. Pitts, Peter P. Chase, Isaac Gerber, John C. Ham, and J. S. Kelley.

The President announced that the Rhode Island Nutrition Association will hold a meeting on December 10 at 8 o'clock, at the St. Joseph's Hospital Auditorium. A speaker from the Boston Dispensary will discuss "Food Allergy."

The meeting adjourned at 10:30 P. M.
Collation was served
Attendance 130

Respectfully submitted,
HERMAN A. LAWSON, M.D., *Secretary*

THE MEMORIAL HOSPITAL

At a combined meeting of the Worcester City Hospital and the Worcester District Medical Society, held at the Worcester City Hospital on January 8, 1941, the following program was presented by members of the Staff of the Memorial Hospital:

1. *Medical Management of the Preoperative Phase of Biliary Tract Disease.*
Dr. John F. Kenney, Chief of the Medical Division.
2. *Anesthesia, with Special Reference to Surgery of the Biliary Tract.*
Dr. Meyer Saklad, Chief of the Anesthesia Division.
3. *Surgery of the Biliary Tract with Special Reference to Ductal Calculus.*
Dr. Frederic V. Hussey, Chief of the Surgical Division.
4. *X-Ray Studies of the Biliary Tract with Special Reference to Ductal Calculus.*
Dr. E. W. Benjamin, Roentgenologist.
5. *Postoperative Management Following Biliary Tract Surgery.*
Dr. Eliot A. Shaw, Senior Asst. Surgeon to the Memorial Hospital.

CHARLES V. CHAPIN HOSPITAL

Internships were completed on December 31, 1940 by Drs. Richard Rice, Walter F. Crosby, and Wilbur B. Manter. Dr. Rice begins internship at the Rhode Island Hospital in March and Dr. Crosby started service at the Worcester City Hospital the first of the year.

Dr. Manter, who was here for three months, begins a Rhode Island Hospital internship in February. He attended Bowdoin College and Columbia University College of Physicians and Surgeons.

Dr. John H. Bloomberg began an internship on October 1. He attended Harvard and received his medical degree from Tufts College Medical School in 1939. He was then at the Newton Hospital in Massachusetts for one year. He was to have served a six-month period but left early in January to take an Army appointment.

Dr. Edward L. Smith, a graduate of Yale University and Harvard Medical School, came from the Rhode Island Hospital on November 1 for a service of five months.

On January 1, Dr. Joseph Caplan of Brooklyn, New York came from the Long Island College Hospital to affiliate for three months. He is a graduate of the College of the City of New York and Long Island College of Medicine, 1937.